REMARKS

Claim 9 has been amended in response to the rejection under 35 U.S.C. §112 as to the use of the word "typically." The rejection of Claims 1 to 8 on indefiniteness is traversed in view of the arguments made below. Also, the rejections of Claims 1 to 9 on prior art are traversed for reasons given below.

The Examiner rejects Claims 1 to 9 as being indefinite on the basis that independent Claims 1, 5 and 8 are unclear as to whether the values for weight ratios represent the ratio of Na_2O or K_2O $2SiO_2$, or vice-versa. It is submitted that the references made to a sodium silicate or potassium silicate of a particular weight ratio in the claims are in fact particular and specific to one of ordinary skill in the art and familiar with commercially available silicates. It is submitted that commercial silicates are commonly referred to by using the values for weight ratios as set forth in this application and in the claims. For example, "2.00 weight ratio aqueous sodium silicate solution" refers to the weight ratio of SiO_2 to Na_2O being 2.00 SiO_2 to Na_2O by weight. It is submitted that one of ordinary skill in the art who is experienced with commercial silicates and silicate chemistry would recognize the term "2.00 weight ratio aqueous sodium silicate solution" as representing a solution with the properties of 2.00 SiO_2 to Na_2O by weight. Another example is that PQ Corporation, a leading North American manufacturer of silicates, expresses silicate weight ratios as the ratio of silica to hydroxide, such as SiO_2 to Na_2O, which is the same reference as used in the present application.

The primary reference relied on by the Examiner to reject the claims under 35 U.S.C. §§ 102 and 103 is Pucillo 5,908,501, which expresses silicate weight ratios in reverse of established industry convention. While expressing them in reverse convention may be

acceptable, it is contrary to established silicate industry convention. It is further noted that Pucillo erroneously refers to the weight ratio of "Kasil No. 6" as 1:3.13 K_2O/SiO_2 in the Example 1 appearing in Column 7, lines 30-34. Kasil No. 6 in fact has a ratio of 2.1 SiO_2 to K_2O in industry convention or 1:2.1 K_2O/SiO_2 in the convention employed by Pucillo. Further, Pucillo erroneously states in Column 4, lines 53-56, that "[a]queous potassium silicate solutions are available having a solids content ranging from about 25 to 50 weight percent and has a molar ratio of K_2O/SiO_2 between 1 to 4." There are no commercially available potassium silicates having a molar ratio of potassium hydroxide to silica from 1 to 4. On the contrary, there are, however, potassium silicates available with a molar ratio from 1 to 4 silica to potassium hydroxide. It appears that Pucillo's convention of expressing silicate molar ratios in reverse of that employed by the silica industry leads to this error. Thus, the reference in Column 4, lines 53-56, when taken at face value, changes Pucillo's entire invention.

Accordingly, it is submitted that the expression of the values for weight ratios in this application and in the claims, being in accordance with the expression of commercial silicates and silica chemistry as known by one of ordinary skill in the art complies with the second paragraph of 35 U.S.C. §112, and the rejection of Claims 1 to 9 as being indefinite should be withdrawn.

The Examiner in paragraph 4 of the Office Action rejects Claims 1, 5 and 8 under 35 U.S.C. §103(a) as being anticipated by Pucillo. It is assumed the Examiner intended to cite 35 U.S.C. §102 for this anticipation rejection, and this rejection will be treated accordingly. First, it should be appreciated that Pucillo is directed to a coating composition for acoustical

insulation, thermal insulation, decorative finishes, and loose packing materials for preventing dustfall from these materials. In contrast, the coating composition of the present invention is intended for the surface treatment of porous metallic substrates for sealing the porosity of the surface prior to the application of functional surface treatments or performance coatings or machining. It is further significant that the metallurgical properties of the products coated are not altered in order to make subsequent application and performance of functional surface treatments or performance coatings effective.

The application of the Pucillo silicate blend to the surface of porous metallic substrates will result in a glass-like coating that will change the electrical conductivity of the metallic substrate. Such a glass-like film functions as a dielectric insulator making the surface of the substrate non-conductive to electricity. Accordingly, coating metallic substrates with the Pucillo coating will not provide the desired goals of sealing internal porosity of porous metallic substrates and maintaining the metallurgical properties of the substrates as required by the claims.

With respect to the present invention, the aqueous solution, being a blend of three very specific silicates, two of sodium salt and one of potassium salt, are critical to providing the sealing of inherently porous and non-flammable sintered powdered metal and cast substrates. Thus, the combined silicate blend claimed in the present application is structurally different from the two silicate blend of Pucillo and provides a coating having substantially different characteristics.

As above mentioned, a metallic substrate treated in the manner taught in Pucillo, which applies a glass-like film acting as a dielectric insulator, would not seal the internal porosity of

porous metallic substrates and permit the further coating of, for example, zinc-rich, high-performance, corrosion-resistance coatings. Indeed, such zinc-rich coatings would not adhere to the glass-like coating of Pucillo. Nor would a necessary galvanic bond take place between the metallic substrate on which Pucillo's coating would be applied into the zinc pigment of a corrosion-resistance coating. Indeed, this undesirable change in electrical conductivity properties of porous metallic substrates caused by surface treatment of silicate blends like that in Pucillo was demonstrated to Examiner Jolley in January, 2004 in connection with the parent application, which later matured into Patent 6,759,087.

Pucillo's most preferred blend of silicates as identified in Column 4 includes a 95% potassium/5% sodium silicate blend. Additionally, Pucillo's blends in an acrylic polymer. A potassium silicate, when dried or cured, forms a continuous crystalline film for an appreciable measure of porosity. A sodium silicate forms a dried, cured film that is entirely continuous and glass-like. Using potassium silicate only for sealing internal porosity of porous metallic substrates does not result in effective sealing due to the discontinuous porous crystalline film of potassium silicate alone. The addition of five percent sodium silicate reduces that porosity to a degree but nowhere near the efficiency of the specific blend of two sodium silicates and one potassium silicate, as set forth in Claims 1, 5 and 8.

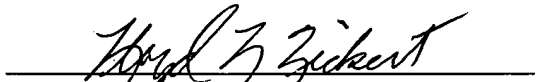
While it may be accurate, as the Examiner contends, that mixing 25 parts of 2.00 sodium silicate and 25 parts of 3.22 sodium silicate may be the same composition as 50 parts 2.61 sodium silicate, commercial sodium silicates are available only in specific weight ratios. Thus, should a given weight ratio be desired that is not commercially available, it must be manufactured by blending two or more sodium silicates of available weight ratios to achieve

the desired non-available ratio. This is what was done in the present application because the resultant weight ratio of the two commercially available sodium silicates set forth in Claims 1, 5 and 8 is not commercially available, and that resultant weight ratio in combination with the fraction of potassium silicate yielded the desired results of sealing the internal porosity of porous metallic substrates without altering the metallurgical properties of the substrates. Accordingly, thereafter subsequent application of functional surface treatments or performance coatings may be effectively made.

In view of the foregoing, it is respectfully submitted that Pucillo does not satisfy the status of a primary reference, and therefore the claims in the application, all of which are rejected at least in part on Pucillo, are patentable and should be allowed.

An earnest endeavor has been made to place this application in condition for formal allowance, and in the absence of more pertinent prior art, such action is courteously solicited.

Respectfully submitted,



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